



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/977,297	10/16/2001	Fred Buchali	Q66335	2046
23373	7590	03/01/2005	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			CURS, NATHAN M	
			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 03/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/977,297	BUCHALI, FRED	
	Examiner Nathan Curs	Art Unit 2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.

- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.

- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.

- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 16 October 2001.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-7 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-7 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 16 January 2002 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All    b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

**DETAILED ACTION**

***Drawings***

1. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

---

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "A2" has been used to designate two different adders in Figure 4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

---

Art Unit: 2633

***Specification***

3. The disclosure is objected to because of the following informalities: page 4, line 17 refers to "Fig. 7"; however there is no Figure 7 in the drawings. In addition, page 8, line 11 and line 33 refers to "eye monitor 5", which should be "eye monitor 6" according to the drawing.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- 
5. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "the results of the measurement of the eye opening" and the limitation "the small-signal response". There is insufficient antecedent basis for these limitations in the claim.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3, 6 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Tremblay et al. (US Patent No. 4823360).
-

Regarding claim 1, Tremblay et al. disclose a receiver for receiving optically transmitted signals, with an optical/electrical converter (fig. 4, element 82), an electronic feedback filter (fig. 4, elements 90 and 102 and fig. 3, elements 42 and 48) and at least one eye monitor for determining the quality of the transmission link (fig. 4, element 26 and col. 5, lines 30-45), the output of the at least one eye monitor being connected to the input of the electronic feedback filter (fig. 4, element 102 and fig. 3, element Vopt).

Regarding claim 3, Tremblay et al. disclose a high-speed eye monitor with threshold-value decision elements (fig. 3 and col. 4, lines 57-63 and col. 5, lines 1-7), the threshold values of which are set close to the vertices of the eye of an eye diagram and thereby generate pseudo-errors (figs. 1 and 2a-2c and col. 3, lines 20-46), with a signal comparator for comparing the correctly decided signal with the signal altered by the pseudo-error (fig. 3, elements 52 and 54 and lines 18-34), with integrators for adding the pseudo-errors and regulators which correct internal control variables in comparison with setpoint values and with a output threshold values (fig. 3, elements 64 and 66, col. 4, lines 18-34 and lines 57-63 and col. 5, lines 1-7).

---

Regarding claim 6, Tremblay et al. disclose a method for measuring the eye opening of an eye diagram, consisting of the following steps: Determination of the garbled signal with two threshold values which correspond approximately to the vertices of the eye opening (figs. 2a-2c and col. 3, lines 34-46), in each case, generation of a data signal with pseudo-errors and detection of the errors through comparison with the correct signal adding of the errors through integration (col. 4, lines 57-63 and col. 5, lines 1-7); comparison of each of the pseudo-error rates with a setpoint value (fig. 3, elements 64 and 66); readjustment of the deviating quantities and output of the differential signal of the threshold values (eye edges) as a measurement value (col. 5, lines 30-37).

Regarding claim 7, Tremblay et al. disclose a method for determining a garbled signal: determination with a feedback filter which makes decisions on the basis of set threshold values and on the basis of already determined signals (fig. 3, element Vopt, 42 and 48 and col. 3, lines 47-68); determination of the eye opening of the signal with two eye monitors which determine the eye edges at the vertices of the signal and supply the measurement to the adaptive element (feedback filter) as a parameter (figs. 2a-2c and col. 3, lines 20-46 and col. 5, lines 63-68); setting of the threshold values of the threshold value decision elements in the feedback filter, the parameters V\_eye\_upper and V\_eye\_lower being used for setting of the threshold values so that the signal is determined in the eye optimum (col. 3, lines 47-68).

---

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tremblay et al. (US Patent No. 4823360) in view of Bulow (US Patent No. 6016379).

Regarding claim 2, Tremblay et al. disclose the receiver according to claim 1, the two eye monitors measuring the eye opening of the signal and outputting it as a parameter signal on equalizer, but do not disclose that the equalizer is a DFE. Bulow disclose a receiver for receiving an optical signal, converting it to an electrical signal, and equalizing the signal, where a DFE is used as an equalizer to provide optimal signal equalization, where the equalizer receives feedback from a Q value measurement circuit (col. 2, lines 58-65 and col. 3, lines 10-15). It would have been obvious to one of ordinary skill in the art at the time of the invention to

---

Art Unit: 2633

use the DFE disclosed by Bulow for the equalizer of Tremblay et al. to provide the advantage of optimal signal equalization, as taught by Bulow.

Regarding claim 4, Tremblay et al. disclose the high-speed eye monitor according to claim 3, but do not disclose the setpoint values being superimposed by small-signal components. Bulow disclose using a variation device superimposed on the Q value-based control of the equalization circuit, in order to enable the equalization control to optimally adapt to changes in signal quality over time (fig. 1, element 9 and col. 4, lines 53-64). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a small-signal variation signal superimposed on the equalization control signal of Tremblay et al. in order to enable the equalization control to optimally adapt to changes in signal quality over time, as suggested by Bulow.

#### **Conclusion**

10. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (703) 305-0370. The examiner can normally be reached M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (703) 305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.



M. R. SEDIGHIAN  
PRIMARY EXAMINER